

**Noel N. Nemeth**

**PUBLICATIONS**

**Journal**

**2003**

1. Jadaan, O. M., Nemeth, N. N., Bagdahn, J., Sharpe, W. N., "Probabilistic Weibull Behavior and Mechanical Properties of MEMS Brittle Materials." *Journal of Materials Science*, Vol. 38, 2003, pp. 4087-4113.

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2. Chen, K.S., Spearing, M.S., and Nemeth, N.N.: "Structural Design of a Silicon Micro Turbo Generator," *AIAA journal*, vol. 39, no. 4, pp 720-728, April 2001.
3. Jadaan, O., and Nemeth, N.N.: "Transient Reliability of Ceramic Structures," *Fatigue and Fracture of Engineering Materials and Structures*, 24, pp. 475-487, 2001."

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4. Choi, S.R., Salem, J.A., and Nemeth N.N.: "High-Temperature Slow Crack Growth of Silicon Carbide Determined By Constant-Stress-Rate and Constant-Stress Testing," *Journal of Materials Science*, Vol. 33, 1998, pp. 1325-1332.

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5. Nemeth, N. N., Powers, L. M., Janosik, L. A., and Gyekenyesi, J. P.: "Durability Evaluation of Ceramic Components Using CARES/Life," *J. of Eng. for Gas Turbines and Power*, Vol. 118, January 1996, pp. 150-158.
6. Salem, J.A., Nemeth, N. N., Powers, and Choi, S.R.: "Reliability Analysis of Unidirectionally Ground Brittle Materials," *J. of Eng. for Gas Turbines and Power*, Vol. 118, Oct., 1996, pp. 863-871.
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10. Jadaan, O., Powers, L.M., Nemeth, N.N, and Janosik, L.A.: "Design of High Temperature Ceramic Components Against Fast Fracture and Time Dependent Failure Using CARES/LIFE Code," *Symp. on Design for Manufacturability and Manufacturing of Ceramic Components*, *Ceramic Transactions*, Vol. 50, 1995.

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11. Choi, S.R., Salem, J.A., Nemeth, N.N., and Gyekenyesi, J.P.: "Elevated Temperature Slow Crack Growth of Silicon Nitride Under Dynamic, Static and Cyclic Bend Loading," *Ceramic Eng. Sci. Proc.*, Vol. 15, No. 5 589-596 (1994).

## **1993**

12. Nemeth, N. N., Powers, L. M., Janosik, L. A., and Gyekenyesi, J. P.: "Time-Dependent Reliability Analysis of Monolithic Ceramic Components Using the CARES/LIFE Integrated Design Program," Life Prediction Methodologies and Data for Ceramic Materials, ASTM STP 1201, C. Brinkman, and S. Duffy, Eds., Phil. PA., 1993, pp. 390-408.
13. Nemeth, N. N., Powers, L. M., Janosik, L. A., and Gyekenyesi, J. P.: "Designing Ceramic Components for Durability," Am. Cer. Soc. Bull., Vol. 72, 1993, pp. 59-69.

## **1989**

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## **NASA Technical Reports**

### **2004**

1. Nemeth, Noel N.; and Jadaan, Osama M.: "Lifetime Reliability Prediction of Ceramic Structures Under Transient Thermomechanical Loads." NASA/TP--2004-212505, 2004.

### **2003**

2. Nemeth, Noel, N.; Powers, Lynn, M.; Janosik, Lesley, A., and Gyekenyesi, John, P.: "CARES/Life Ceramics Analysis and Reliability Evaluation of Structures Life Prediction Program." NASA/TM-2003-106316, February 2003.

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3. Nemeth, N.N.; "Highlights of NASA's Ceramic Life Prediction Methodology," Microturbine Materials Program Peer Review Meeting, Worcester, Massachusetts, June 26-27, 2001. "Slow Crack Growth Analysis of Brittle Materials with Exponential Crack Velocity Formulation, Part 1: Analysis," S. R. Choi, N. N. Nemeth, and J. P. Gyekenyesi, NASA TM 2002-211153/PART1, National Aeronautics & Space Administration, Glenn Research Center, Cleveland, OH (2002).
4. "Slow Crack Growth Analysis of Brittle Materials with Exponential Crack Velocity Formulation, Part 2: Constant Stress Rate Experiments," S. R. Choi, N. N. Nemeth, and J. P. Gyekenyesi, NASA TM 2002-211153/PART2, National Aeronautics & Space Administration, Glenn Research Center, Cleveland, OH (2002).
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10. Szatmary, S.A., Gyekenyesi, J.P., and Nemeth, N.N.: "Calculation of Weibull Strength Parameters, Batdorf Flaw Density Constants and Related Statistical Quantities Using PC-CARES," NASA TM 103247, October 1990.

### **Conference Proceedings and Presentations**

#### **2004**

1. Nemeth, N. N., Jadaan, O. M., Palfi, T., and Baker, E. H., "Predicting the Reliability of Ceramics Under Transient Loads and Temperatures With CARES/Life." Symposium on Probabilistic Aspects of Life Prediction, November, 6-7, 2002, Miami Beach, Florida. ASTM-STP 1450, W. Steven Johnson and Ben M. Hillberry, Eds., ASTM International, October 2004.

#### **2003**

2. Nemeth, N. N., Jadaan, O. M., Palfi, T., and Baker, E. H., "Predicting the Reliability of Brittle Material Structures Subjected to Transient Proof Test and Service Loading." 8th International Symposium on Fracture Mechanics of Ceramics, February 25-28, 2003, Houston, Texas.
3. Reh, Stefan, Palfi, Tamas, Nemeth, N. N., "Probabilistic Analysis techniques Applied to Lifetime Reliability Estimation of Ceramics". Paper ID - APS-II-49 Glass. The paper was presented in session 5C entitled "NGLT Advanced Materials and Safe Life Design -- II at the Joint meeting of the 39th Combustion Subcommittee (CS), 27th Airbreathing Propulsion Subcommittee (APS), 21st Propulsion Systems Hazards Subcommittee (PSHS), and 3rd Modeling and Simulation Subcommittee

(MSS). The meeting was held on Monday through Friday December 1-5, 2003 at the Aerospace Corporation and Antlers Adam's Mark (hotel) in Colorado Springs, Colorado. JANNAF 39th CS/27th APS/21st PSHS/3rd MSS Joint Subcommittee Meeting, Colorado Springs, Colorado, December 1-5, 2003.

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5. Nemeth, N.N., Jadaan, O., Palko, J.P., Mitchell, J, Zorman, C.A.: "Structural Modeling and Probabilistic Characterization of MEMS Pressure Sensors Membranes". Proceedings of the MEMS: Mechanics and Measurements Symposium, sponsored by the Society of Experimental Mechanics (SEM) Inc., June 4, Portland Oregon, 2001, pp. 46-51.

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6. Choi, S.R., Holland, F.A., Nemeth, N.N., and Butler, D.C.: "Machining Damage and Slow Crack Growth/Reliability Analysis of Glass Specimens," Presented at the 24th Cocoa Beach Conference, Cocoa Beach, Florida, January 23-28, 2000. To be published in Cer. Eng. Sci. Proc. (2000).
7. Jadaan, O., Nemeth, N.N., Powers, L.M., Palko, J.P., and Baker, E.H., "Time-Dependent Reliability of Ceramic Components Under Transient Loads," Probabilistic Approaches in Fatigue and Fracture, Soboyejo, A.B.O., Orisamolu, I.R., and Soboyejo, W.O., eds., Trans Tech Publications, Switzerland, 2001. Vol. 200 of Key Engineering Materials, ISSN 1013-9826. Presented at International Mech. Eng. Congress and Expo. November 2000, Orlando, Fla..

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8. Nemeth, N.N., Janosik, L.A., and Palko, J.P.: "CARES/Life Software For Characterizing and Predicting the Lifetime of Ceramic Parts," Proc. of NAFEMS World Congress'99 Newport, RI, April 25-28, 1999, pp. 1125-1144.
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## 1998

11. Nemeth, N.N., Powers, L.P., and Baker, E.H. "CARES/Life Software for Designing More Reliable Ceramic Parts," Presentation – Physics and Process Modeling (PPM) Review, Cleveland 1998.
12. Rahman, S., Nemeth, N.N., and Gyekenyesi, J.P.: "Life Prediction and Reliability Analysis of Ceramic Structures Under Combined Static and Cyclic Fatigue," 1998 ASME Turbo Expo-Land, Sea, and Air, Stockholm Sweden, June 2-5, 1998, Paper No. 98-GT-569.
13. Nemeth, N.N., Powers, L.P., Choi, S.R., Janosik, L.A., and Baker, E.H.: "Cares Software for Time-Dependent Reliability of Ceramic Parts," Proceedings of the 1998 Advanced Turbine Systems Annual Review and Meeting, Wash. D.C., Nov.

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14. Choi, S.R., Nemeth, N.N., Salem, J.A., Powers, L.M., and Gyekenyesi, J.P.: "High Temperature Slow Crack Growth of Si<sub>3</sub>N<sub>4</sub> Specimens Subjected to Uniaxial And Biaxial Dynamic Fatigue Loading Conditions," Am. Cer. Soc. 19th Annual Conf., Jan 8-12, 1995, Cocoa Beach, FL, Ceramic Eng. Sci. Pro., Vol 16, No. 4 pp.,509-518 (1995).

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**Books/Monograms/Special Issues**

**1991**

1. Nemeth, N.N., and Gyekenyesi, J.P.: "Probabilistic Design of Ceramic Components With the NASA/CARES Computer Program," Volume 4 – Engineered Materials Handbook; Ceramics and Glasses; ASM International, ISBN 0-87170-282-7, 1991, pp. 700-708.